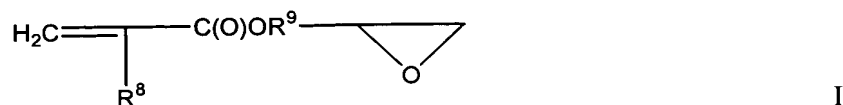


What is claimed is:

1. A curable powder coating composition comprising:

(a) glycidyl(meth)acrylate based resin formed by copolymerizing

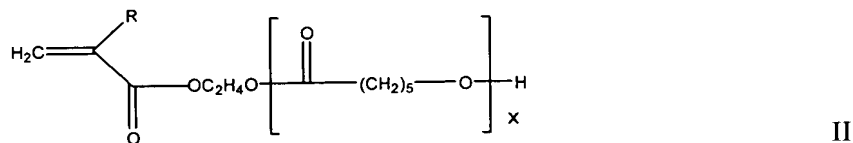
(i) a glycidyl (meth)acrylate monomer of the following formula I



wherein R^8 is H or a lower alkyl and R^9 is a branched or unbranched alkyl group containing from 1 to 4 carbon atoms,

(ii) a caprolactone (meth)acrylate monomers of the following formula

II



wherein x is 1 to 5 and R is hydrogen or lower alkyl; and

optionally (iii) an ethylenically unsaturated monomer other than the monomers of (i) and (ii); and

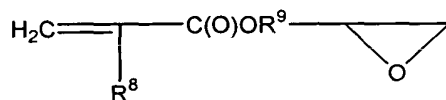
(b) a curing agent

2. The composition of claim 1 comprising (c) an ethylenically unsaturated monomer other than the monomers of (a) or (b), wherein the ethylenically unsaturated monomer is selected from the group consisting of alkyl esters of acrylic acid monomers, alkyl esters of (meth)acrylic acid monomers, vinyl monomers, and mixtures thereof.

3. The composition of claim 2, wherein the ethylenically unsaturated monomer is selected from the group consisting of methyl acrylate, ethyl acrylate, n-butyl acrylate, isobutyl acrylate, 2-ethylhexyl acrylate, cyclohexyl acrylate, isobornylacrylate, methyl (meth)acrylate, ethyl (meth)acrylate, n-butyl (meth)acrylate, isobutyl (meth)acrylate, 2-ethylhexyl (meth)acrylate, lauryl (meth)acrylate, tridecyl (meth)acrylate, stearyl (meth)acrylate, cyclohexyl (meth)acrylate, isobornyl

(meth)acrylate, styrene, α -methyl styrene, α -ethylstyrene, vinyl toluene, divinyl benzene, vinyl chloride, vinylidene chloride, vinyl acetate, vinyl propionate, and mixtures thereof.

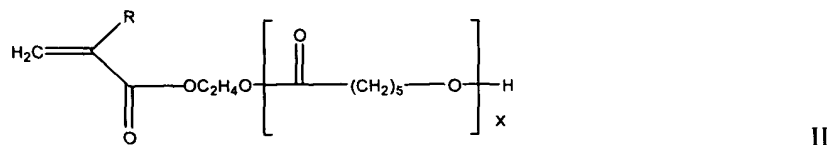
4. The composition of claim 1, further comprising one or more additives.
5. The composition of claim 1, wherein the glycidyl (meth)acrylate resin comprises 10 to 65 weight % glycidyl (meth)acrylate monomer and 2 to 35 weight % caprolactone (meth)acrylate monomer.
6. The composition of claim 1, wherein the glycidyl (meth)acrylate resin comprises 10 to 65 weight % glycidyl (meth)acrylate monomer, 2 to 30 weight % caprolactone (meth)acrylate monomer, and 5 to 88 weight % ethylenically unsaturated monomer.
7. The composition of claim 1, comprising 60 to 93 weight % glycidyl (meth)acrylate resin.
8. The composition of claim 7, comprising 7 to 40 weight % curing agent.
9. The composition of claim 1, wherein the glycidyl (meth)acrylate resin has a weight average molecular weight of from about 3,000 to 20,000.
10. A glycidyl (meth)acrylate based resin for powder coating comprising:
(a) a glycidyl (meth)acrylate monomer of the following formula I



I

wherein R⁸ is H or a lower alkyl and R⁹ is a branched or unbranched alkyl group containing from 1 to 4 carbon atoms;

(b) a caprolactone (meth)acrylate monomer of the following formula II



wherein x is 1 to 5 and R is hydrogen or lower alkyl; and

optionally (c) an ethylenically unsaturated monomer other than the monomers of (i) and (ii).

11. The resin of claim 10, comprising an ethylenically unsaturated monomer, wherein the ethylenically unsaturated monomer is selected from the group consisting of methyl acrylate, ethyl acrylate, n-butyl acrylate, isobutyl acrylate, 2-ethylhexyl acrylate, cyclohexyl acrylate, isobornylacrylate, methyl (meth)acrylate, ethyl (meth)acrylate, n-butyl (meth)acrylate, isobutyl (meth)acrylate, 2-ethylhexyl (meth)acrylate, lauryl (meth)acrylate, tridecyl (meth)acrylate, stearyl (meth)acrylate, cyclohexyl (meth)acrylate, isobornyl (meth)acrylate, styrene, α -methyl styrene, α -ethylstyrene, vinyl toluene, divinyl benzene, vinyl chloride, vinylidene chloride, vinyl acetate, vinyl propionate, and mixtures thereof.

12. A glycidyl (meth)acrylate based resin according to claim 10, wherein the resin has a weight average molecular weight of 3,000 to 20,000.

13. A glycidyl (meth)acrylate based resin according to claim 10, wherein the resin has a glass transition temperature of 35 to 70°C.

14. A glycidyl (meth)acrylate based resin according to claim 10, wherein the resin has an epoxy equivalent weight of 200 to 1450.

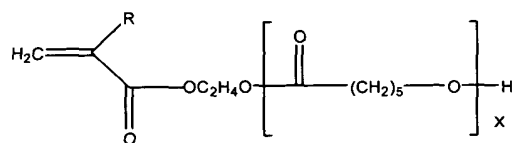
15. A glycidyl (meth)acrylate based resin according to claim 10, wherein the resin comprises 2 to 30 weight % caprolactone (meth)acrylate monomer.

16. A glycidyl (meth)acrylate based resin according to claim 10, wherein the resin comprises 2 to 30 weight % caprolactone (meth)acrylate monomer.

17. A glycidyl (meth)acrylate based resin according to claim 10, wherein the resin comprises 10 to 65 weight % glycidyl (meth)acrylate monomer.

18. A glycidyl (meth)acrylate based resin according to claim 10, wherein the resin comprises 5 to 88 weight % ethylenically unsaturated monomer.

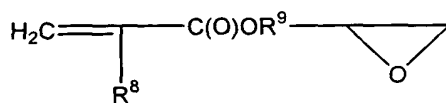
19. A process for producing a glycidyl (meth)acrylate based resin comprising copolymerizing in an organic solvent polymerization medium a mixture of monomers comprising glycidyl (meth)acrylate, a caprolactone (meth)acrylate monomer of the following formula:



wherein x is 1 to 5 and R is hydrogen or lower alkyl, and an ethylenically unsaturated monomer other than the glycidyl (meth)acrylate and caprolactone (meth)acrylate monomer, in the presence of a polymerization initiator to produce a glycidyl (meth)acrylate based resin having side chains derived from caprolactone, wherein the resin has a weight average molecular weight of 2,000 to 6,000, a measured glass transition temperature of 35 to 70°C, and epoxy equivalent weight of 275 to 800.

20. A process according to claim 19, wherein the ethylenically unsaturated monomer other than the glycidyl (meth)acrylate and caprolactone (meth)acrylate is methyl (meth)acrylate, styrene, or mixtures thereof.

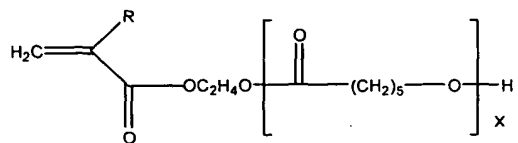
21. A process for producing a thermoset powder coating comprising:
(a) synthesizing a glycidyl (meth)acrylate based resin by copolymerizing:
(i) a glycidyl (meth)acrylate monomer of the following formula I



wherein R⁸ is H or a lower alkyl and R⁹ is a branched or unbranched alkyl group containing from 1 to 4 carbon atoms;

(ii) a caprolactone (meth)acrylate monomers of the following formula

II



II

wherein x is 1 to 5 and R is hydrogen or lower alkyl; and

optionally (iii) ethylenically unsaturated monomers other than the monomers of (i) and (ii) to provide a glycidyl (meth)acrylate based resin;

(b) mixing the glycidyl (meth)acrylate based resin with a curing agent to provide a thermosetting powder coating composition;

(c) applying the thermosetting powder coating composition to a substrate; and

(d) curing the thermosetting powder coating composition to provide a thermoset powder coating.

22. The process of claim 21, further comprising mixing the glycidyl (meth)acrylate based resin with one or more additives.

23. A clearcoat prepared by curing the curable powder clear coating composition of claim 1.